

for MTC, met with the School Board last month and went over his company's plans to meet inmates' educational needs. Murphy said last Monday, Feb. 22, that MTC had provided the Millard County School district with a draft

to operate a private prison in Millard County.

School Board President Howard Clayton said he expects the school board should wait until MTC actually gets the

a letter to the state. The majority of Millard County residents do not support building a private prison in Mill County. Commissioner LaVar Cox said

dents are in favor of the prison, while 38.5% of those polled support the prison and 49.2% oppose the prison.

Brush Wellman mill producing for the future

m/023/003

By Derin Phelps

This is the second in a two-part series on Brush Wellman's Utah operations. Last week's article focused on Brush Wellman's mine, located about 45 miles northwest of Delta in the Topaz Mountains. This week's article will focus on the mill, located about 11 miles north of Delta on Brush Wellman Rd.

The mill opened in September of 1969. Greg Hawkins, Brush Wellman Mine Manager, said it was a major capital investment.

"They didn't know at that time how large an ore body it was going to be, so they built the facility (the mill) with the hopes that they would be able to develop more ore, and be able to make the bertrandite competitive with the beryl ore process," Hawkins said.

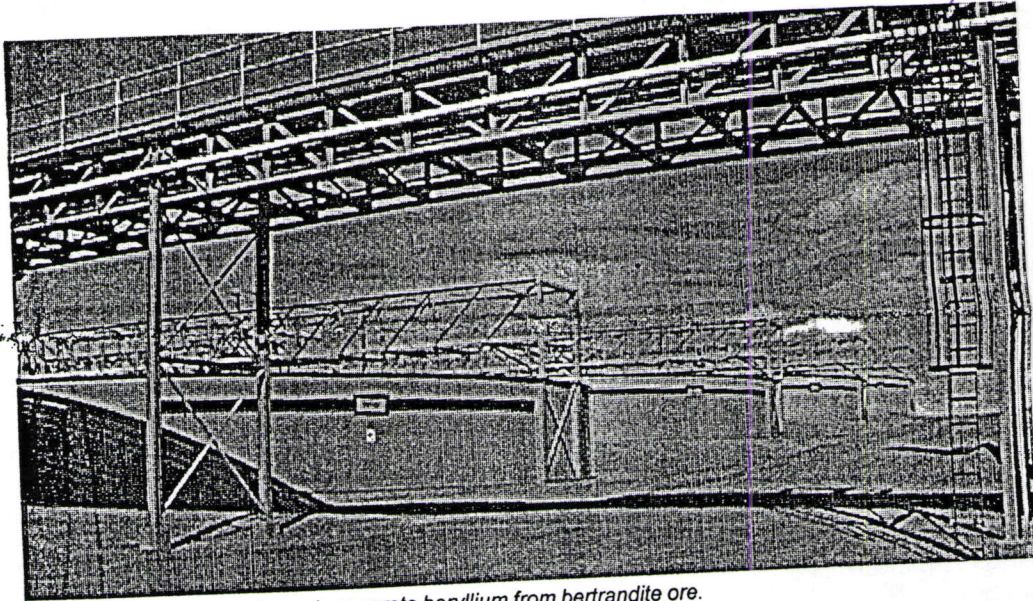
The Topaz Mine produces bertrandite ore. Brush Wellman ships beryl ore in from other countries. Both are processed at the mill. Hawkins explained that when ore trucks arrive at the mill from the mine, they stop on scales where the ore is weighed. Some trucks bring in high grade ore, and some bring in low grade ore. Ore is belly-dumped into bins. John Otto, Engineering and Lab Manager, said when the bertrandite ore arrives, it looks like dirt. He said the only way to tell if beryllium is in the ore is to do a chemical analysis or run the ore through a beryllium analyzer.

"We blend the low grade with the high grade, so that we get the right feed for the mill," Hawkins said.

After a loader scoops up the ore, it is crushed. The ore is then mixed with water and ground to a fine material. Dilute sulfuric acid is added so the material can be leached, which means the beryllium is extracted from the ore. Through this process, beryllium, iron and other elements are extracted into a liquid solution. Eight large tanks, called thickeners, are used to separate the liquid solution from the solids. The tanks are 90 feet in diameter. A rake inside the tanks rotates the ore to bring the slurry to the middle of the tank. A pump is used to remove the slurry. The liquid solution, which contains beryllium, falls into a launder and then travels into another tank for further processing. Solids are washed and sent to Brush Wellman's disposal pond.

Beryl ore is occasionally shipped in from Brazil, China and other locations. It's heated in a furnace, using carbon electrodes. This turns it into a glass frit. It looks black because of the carbon that is used. The frit is heated again to open it up. It's then ground into a fine material and combined with dilute sulfuric acid. The material is once again heated and water is added. A clear liquid solution coming from the process holds the beryllium.

Otto said thickeners used with beryl ore are smaller than those used with the bertrandite ore because the beryl material settles out very quickly. When beryllium is extracted from both the bertrandite and beryl ore, the liquid solutions from both that contain the beryllium are combined and processing continues. The beryl and bertrandite ore solutions are combined and put through a solvent extraction process, which uses an organic material to extract the beryllium. The organic material is separated and the water settles to the bottom. At this point, beryllium is in the organic



Brush Wellman's thickening vats separate beryllium from bertrandite ore.

layer. The organic is separated from the water solution.

The second phase of the solvent extraction process is called stripping. An ammonia carbonate solution is used to strip the beryllium off of the organic material and back into the water phase. The carbonate solution is then purified. After purification, the solution is heated through different tanks. Beryllium carbonate comes out and is recombined with water, re-heated and re-precipitated into beryllium hydroxide. This is the final product that comes out of the Delta mill. It's shipped in 55 gallon drums to Brush Wellman's plant in Elmore, Ohio.

"The material looks very white in powder, very much like powdered laundry soap," Otto said.

Waste from the beryl ore also goes into the disposal pond. Hawkins explained that the pond is 200 acres and lined with clay. It contains all the left over inert, or relatively stable, ores after the beryllium has been extracted. Hawkins said if technology changes in the future, the left over inert ores in the pond could be available for further processing. Currently, the other minerals inside the ore, which includes fluorite, aluminum and other elements, can't be extracted economically at this time. As the economy and technology changes in metallurgy and processing techniques, some of the left over material may eventually be able to be re-processed, according to Hawkins.

The disposal pond is managed carefully to protect ground water. Brush Wellman planted some natural varieties of seeds up the side slopes of the pond to minimize erosion.

Otto said Brush Wellman pursues three main products: Beryllium-copper alloy, beryllium ceramic material and beryllium metal.

Don McMillan, Director of Brush Wellman's Utah Operations, said the mill and mine near Delta are the linchpin in Brush Wellman's entire international operation because the bertrandite ore is here. McMillan explained that roughly 30% of Brush Wellman's sales are international.

"That's good, but of course, on the down side, you're a victim of currency fluctuations and the Asian Flu that happened here a while back, that did have a pretty significant impact on us in 1998," McMillan said.

The Utah operation is different than other Brush Wellman facilities. McMillan said most of the other facilities are manufacturing and fabricating operations. The mill in Millard County and the mine in Juab County are the only Brush Wellman facilities that do what they do.

"We are the only mill in the world that can process beryllium from both beryl ore and bertrandite ore," McMillan said.

Before the break-up of the Soviet Union and the fall of the Berlin Wall, Brush Wellman produced approximately 70% of the world's beryllium hydroxide. Now, the company produces a large percentage of the substance. The former Soviet Union's beryllium operation was shut down primarily because beryllium used by the So-

viet Union was dedicated to defense and space.

"Of course, with the severe downsizing of the Russian military, they have no market for their beryllium now," McMillan said.

The former Soviet operation was also shut down because of the crumbling economy and civil unrest since the nation's break-up.

Defense spending cutbacks in the U.S. have created some challenges for Brush Wellman since the company was producing much of its products for the military. When McMillan first started working for the company 9 1/2 years ago, 50% of Brush Wellman's sales were in metallic beryllium. Now, only 7% of the company's sales are in it. Brush Wellman has had to hustle to make up lost business in this area. McMillan said the company has remained competitive by focussing more on producing beryllium-copper.

See Brush on page 10

Regional Conference

by Beverly P. DeWye
Fillmore Area Media Relations

This Sat. & Sun., March 6 and 7, is the much anticipated Regional Conference of the Church of Jesus Christ of Latter-Day Saints. President James E. Faust of the 1st Presidency will be conducting and speaking. The Saturday Priesthood session, which is invitation only, will be held from 2-6 p.m. in the Delta West Stake Center in Hinckley. Sun., March 7, everyone is encouraged to attend the session, which begins at 10 a.m. in the Palladium, 300 North Center, in Delta.

President Faust was born in Delta, and spent several summers during his youth helping on his grandparents' farm in Oak City. Since 1995 he has served as 2nd Counselor to President Gordon B. Hinckley. He recently stated: "...we are facing difficult times. We must be courageously obedient...we will be called upon to prove our spiritual stamina, for the days ahead will be filled with affliction and difficulty. But with the assuring comfort of a personal relationship with God,

we will be given a calming courage." (The Ensign Jan., 1999).

Elder Ben E. Banks, Utah South Area President and Elder Glen A. Overton, an Area Authority Seventy will also be in Delta to speak at the conference. A regional choir, with singers from Fillmore, Delta and Delta West Stakes, will be performing, including singing "This is the Christ", a number with lyrics by President Faust and music by Michael Moody, who also has relatives in Oak City. Spanish translation will be available, for the conference.

Those living within walking distance of the Palladium are asked to walk, and everyone else is urged to car pool, as parking will be limited.

This conference provides all residents of Millard County a fantastic opportunity to see and hear a member of the 1st Presidency. Members and non-members alike are invited and welcome to attend this very special gathering.

Ohio.

Brush

Continued from front page

Beryllium-copper is used in many industries like telecommunications, cellular phones, parts for electronics in motor vehicles and computers.

"Very small amounts of beryllium enhance copper with most of the values of beryllium, but you hold the benefit of the low cost and the commodity cost of copper, so it makes it more marketable," McMillan said.

Brush Wellman's Elmore, Ohio plant produces a substance called beryllia, which is used in laser tubes and medical applications. Auto manufacturers also use beryllia in ignition modules in cars and trucks. McMillan said it was also used on the Cruise and Patriot Missiles as a nose cone for targeting.

During the Gulf War in 1991, the Lan-tern Infrared Targeting System was housed in beryllium metal because metallic beryllium has very good vibration dampening characteristics and holds things very still. All of the Gulf War guidance systems used beryllium-copper in their computers.

Brush Wellman, formerly the Brush Beryllium Company, became an established company in 1939. It was founded by Charles F. Brush. The beryllium industry has had its ups and downs over the years. The nature of the market has gone through some recent changes. When McMillan was hired by Brush Wellman, the company's focus was to compete with other beryllium producers. There were very few. Now, the company's focus is to

compete with substitute materials for beryllium, like phosphorus-bronze.

"That's the business we compete in, which is really called the nonferrous specialty alloy business," McMillan said. "We only have about 5% of that market, so there's a tremendous opportunity for growth there as long as we can overcome the cost barrier."

Beryllium processing costs are high for a variety of reasons. The mining operation is expensive because of the high stripping ratios necessary, compared to substances like gold and copper. Mill processing is more expensive because the chemistry to remove the beryllium from the bertrandite and beryl ore is tougher to understand than other elements. McMillan said, however, that the real high end cost comes more on the value added end.

"There are operations where you have to get into casting or forming it or machining it and putting it in a form," McMillan said. "It's a little harder to work with in some cases. It's harder to roll beryllium-copper than it is just straight copper. That's because beryllium adds stiffness to the product."

Brush Wellman employees say they love their jobs, and are treated with respect. McMillan said he feels very strongly that coming to a workplace that is drudgery is something to avoid. He said he tries to create a positive atmosphere. Brush Wellman has a workforce that generally likes to get along and work together, according to McMillan. He said management is focussed on how to get people more engaged in the business and empowered to be their own decision-makers.

McMillan said Brush Wellman also has a good relationship with the community. He described it as a very respectful, successful partnership. Company leaders report they feel they have support from Millard County community leaders. McMillan encourages the community to keep in touch with Brush Wellman and notify him of any concerns. The Brush Wellman website address is www.brushwellmanutah.com.

FACTS: Electric mowers are more energy-efficient. Studies have shown that consumers like electric mowers at least the same as gas mowers if not better. Participants prefer the cordless electric mowers due to, their safety, durability, convenience, user-friendliness, starting ease and handling.

TIPS: Buy a cordless electric mower. You will find it is quiet, convenient and demands almost no maintenance, yet the cost is similar to that for gas mowers.

SUBSCRIBE TODAY!

FREE HEARING EXAMS IN FILLMORE and DELTA

C. Barton Anderson, M.S., CFU-A, clinical audiologist, will be providing Free Hearing Exams at the Delta and Fillmore Community Medical Centers.



Other hearing services available at the time are: Hearing Aid Repairs and New Hearing Aid Fittings and followup on a 45-day trial basis.

Please call for your appointment
Delta 9:00 - 11:30, call 864-5591
Fillmore 1:30 - 4:00, call 743-5591

p.m.

ENDA

Mayor R. Dale Roper

Topic: Receive Public Comment

Regarding a Proposed Single Lot
Subdivision Located at Approximately
380 North 100 East

/s/ R. Dale Roper

Mayor

THE PUBLIC IS INVITED TO PARTICI-
PATE IN ALL CITY MEETINGS

If you need a special accommodation
to participate in the meeting, please call
the Delta City Office at least one (1) day
prior the meeting.

Phone No.: 864-2759

Published in the Millard County
Chronicle Progress February 25,
March 4, 11 and 18, 1999.

NOTICE TO WATER USERS

The State Engineer received the following Application(s) to Appropriate or Change Water in Millard County (Locations in SLB&M).

Persons objecting to an application must file a CLEARLY READABLE protest stating FILING NUMBER, REASONS FOR OBJECTION, PROTESTANTS' NAME AND RETURN ADDRESS, and any request for a hearing. Protest must be filed with the State Engineer, Box 146300, Salt Lake City, UT 84114-6300 (801-538-7240) on or before APRIL 1, 1999. These are informal proceedings as per Rule R655-6-2 of the Division of Water Rights.

(LEGEND: Point(s) of Diversion = POD; Place of Use = POU; Nature of Use = USE)

APPLICATION(S) TO CHANGE WATER
68-624(a22977): Fillmore USA Bureau of Land Management propose(s) to change the POU of water as evidenced by 68-624 Certificate 7929, 68-1760 Certificate a638.

HERETOFORE: QUANTITY: 0.06 cfs.
SOURCE: Hop Crk Spring, Maple Crk Spring, Birch Creek Spr. POD: (1) S 2715 E 1425 from NW Cor, Sec 1, Source: Birch Creek Spring (2) S 1187 E 1296, Source: Hop Creek Spring (3) S 1060 E 220 from W¼ Cor, Sec 12, T12S, R2¼W., Source: Maple Creek Spring. USE: Stockwatering: 2000 head of livestock; Recreation: Use of 10 camping units and 1 rest area. POU: NW¼SE¼ Sec 34; SE¼NW¼ Sec 35, T12S; NE¼SW¼ Sec 1; NW¼SE¼ Sec 12, T12S, R3W; SE¼SE¼ Sec 2; SE¼SE¼ Sec 3; SE¼SE¼ Sec 4; NW¼NW¼ Sec 12; SW¼NE¼ Sec 13, T12S, R2¼W.

HEREAFTER: QUANTITY: 0.06 cfs.
POD: Same as Heretofore. USE: Same as Heretofore. POU: S¼NE¼, SE¼SW¼, S¼SE¼ Sec 2; E¼SW¼ Sec 11; NE¼NW¼, NE¼SW¼ Sec 14; NE¼NW¼, SE¼SW¼ Sec 23; SE¼NW¼ Sec 26; SE¼NW¼ Sec 34; E¼NW¼ Sec 35, T12S; NW¼SE¼ Sec 2; SE¼SE¼ Sec 3; SE¼SE¼ Sec 4; NW¼NW¼, NW¼SE¼ Sec 12; SW¼NE¼ Sec 13, T12S, R3W; Lot 8 Sec 1, T12S, R2¼W. The remaining water has been abandoned.

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